



# OriginClear Technologies

A division of  
ORIGINCLEAR Inc

A horizontal graphic of a water splash with bubbles, spanning the width of the page.

*A leading provider of water treatment solutions*

# What is OriginClear?



- A group of profitable, well-managed water treatment companies that provide complete systems and services...
  - The OriginClear Group™
- A breakthrough water cleanup technology
  - OriginClear Technologies division

*A leading provider of water treatment solutions*

# OriginClear's Development

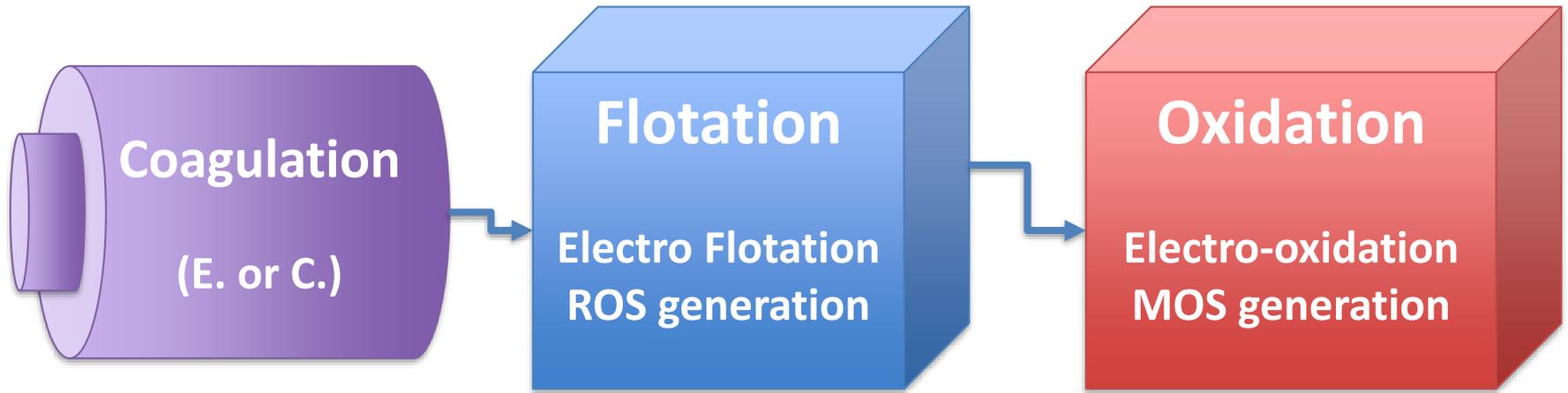


- Founded in 2007: a pure technology company.
- Went public in 2008 on OTC Bulletin Board.
- Developed a breakthrough high-speed water cleanup technology using multi-stage electrochemistry:  
**Electro Water Separation™ (EWS).**
- Commercialization of the technology through...
  - Licensing to equipment makers.
  - Joint Ventures.
  - Master licensing, beginning with Hong Kong subsidiary.

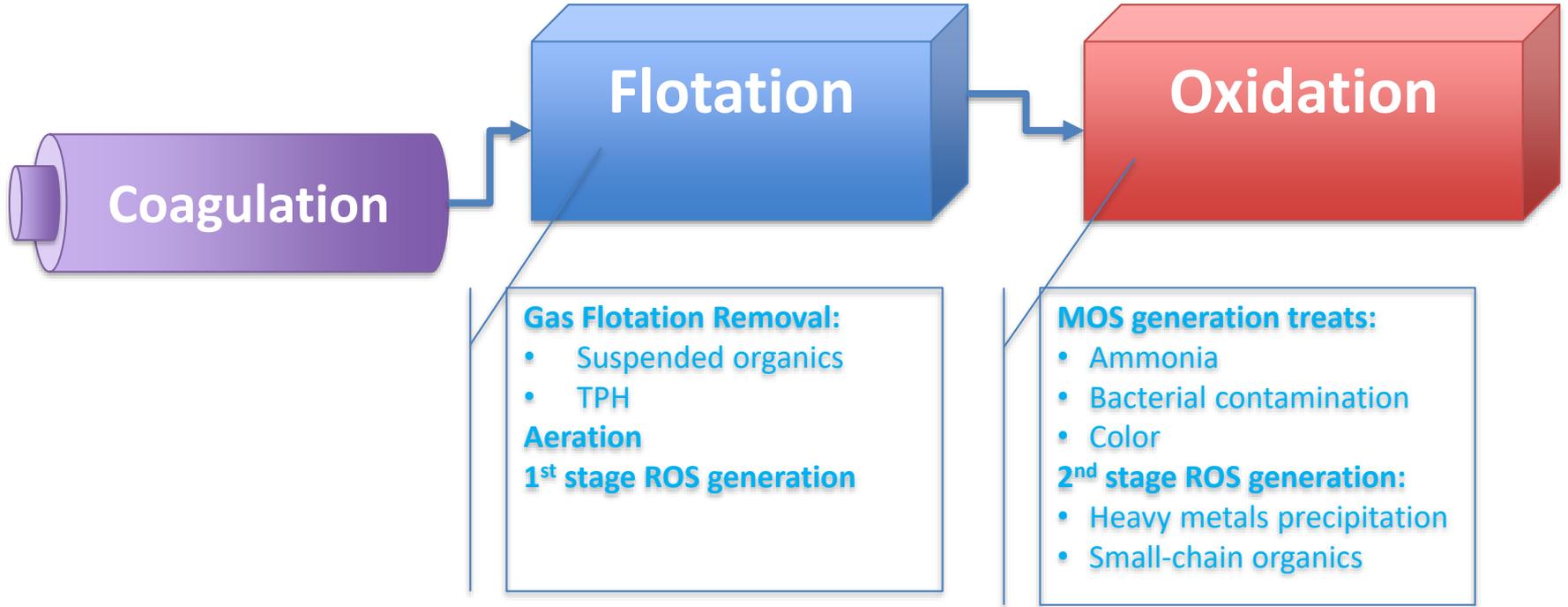
# What is EWS

- EWS is a proven system for cleaning polluted water.
- Originally designed for extracting algae from water
- Then applied to recovering oil from produced water and now, with the addition of advanced oxidation treatment, addresses complex pollutants in a rapid in-line, effective manner.
- EWS is modular: It can be incorporated into an existing waste treatment system or designed as a stand alone equipment.

# Three integrated process modules

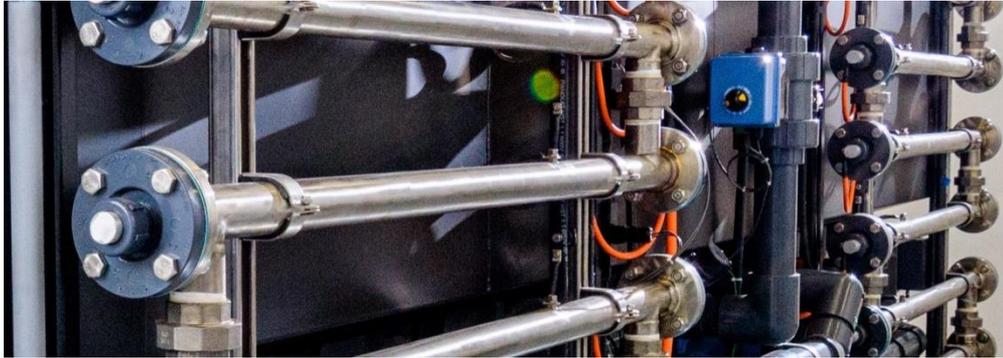


# Applications

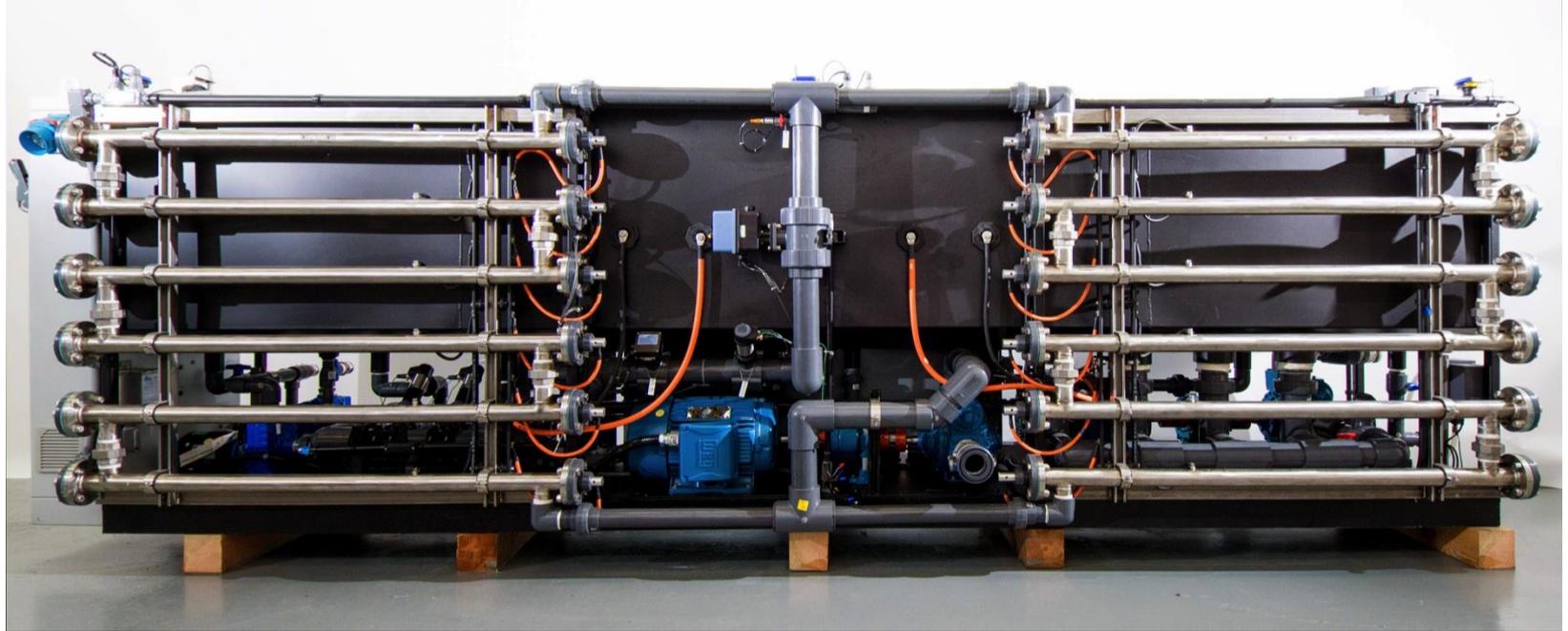


## Key Elements in the EWS system

- Selected and specifically designed MMO anodes are a core specificity of EWS. They are used as Oxidizers both in the generation of  $H_2O_2$  (ROS) as well as chlorine species in the Advanced Oxidation Process and in the generation of gas bubbles for Electro-Flotation.
  - HF Reactors (right) for gas separation and oxidation
  - SSE Reactors (below) for mixing and enhanced contact



# A standard implementation



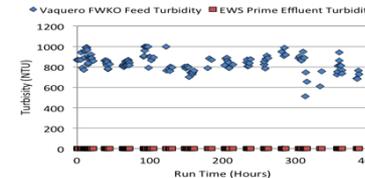
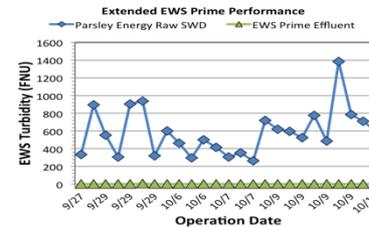
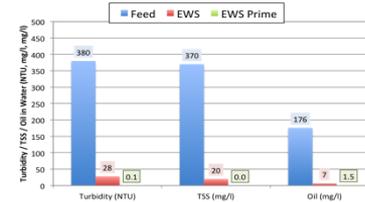
400 tons per day nominal treatment capacity – Two units fit in a 20' container

# 2016: Technology Status

- EWS now scaled and proven.
- Expert team pursuing partnerships worldwide.
- Wins in Asia, Europe, US:
  - OriginClear (HK), Asian subsidiary now funded with Chinese partners, manufacturing arm and direct presence in China
  - French JV (Ennesys) at product stage, \$50 million valuation.
  - First Oil & Gas licensee (PACE) active in Marcellus formation.
  - Strategic discussions with majors in Bakersfield area.
  - “Sour well” remediation being proven in Texas

# Oil & Gas industry

- Niobrara Performance
  - Better than 99% removal of Turbidity, TSS and Oil observed
- Permian Robustness
  - Constant performance despite wide variations in feed from many different truckloads
- Monterey Clarity
  - Field operations to treat CSS produced water to steam boiler make-up and irrigation quality



# Other results

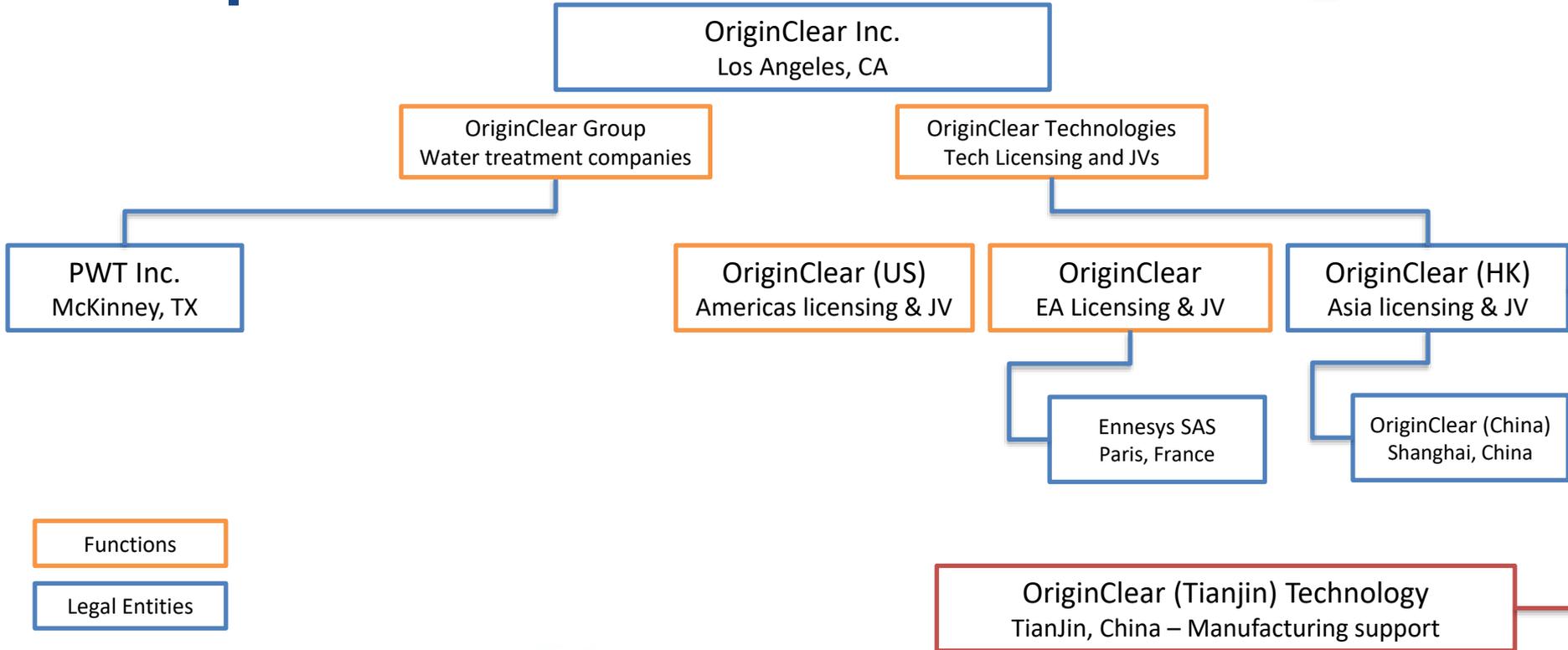
- Wastewater resulting from the flood of a conduit manufacturing plant
  - 100% removal of Oil & Grease, TSS, heavy metals
  - 95% removal of COD, 90% removal of BOD
- Pharmaceutical industry effluent
  - COD down from 221,000 to 22,000, 90%
  - 90%  $\text{NH}_3$  removal



# JV or Licensing Model

- Working with manufacturers: optimization of tanks and processes.
- Applications library to assist with discharge requirements
- Operational standard model. We then define specific iterations to solve specific discharge issues.
- Large Intellectual property portfolio - multiple pending patents.

# Group structure



# Management Team



- Corporate
  - Riggs Eckelberry – President & CEO/Co-Founder
  - Bill Charneski – Senior Vice President, M&A
- OriginClear Technologies division
  - Jean-Louis Kindler – President, OriginClear Technologies div.
  - Nicholas Eckelberry – Chief Research Officer/Co-Founder
  - Andrew Davies – Director of Operations

# Contact Information



[www.originclear.com/contact](http://www.originclear.com/contact)